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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,303	02/07/2002	Craig C. Andrews	LYNN/0152	9695

24945 7590 11/26/2003
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EXAMINER

ROSSI, JESSICA

ART UNIT PAPER NUMBER

1733

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,303

Applicant(s)

ANDREWS ET AL.

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/14/03, Election.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,11-13,27-39,41,42 and 45-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,10,14-26,40,43 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/10/02.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 02062004.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

1. Claims 8-9, 11-13, 27-39, 41-42, and 45-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention and non-elected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the paper dated 11/14/03.
2. Applicant's election with traverse of Group I, Species Aix, and Species Aiiix, in the paper dated 11/14/03, is acknowledged (claims 1-7, 10, 14-26, 40, and 43-44). The traversal is on the ground(s) that searching all of the claims would not place a serious burden on the examiner. This is not found persuasive because, as set forth in the restriction requirement, the subassembly can be made by another and materially different process where the components are compression bonded without the use of vacuum (see Admitted Prior Art, p. 3, lines 4-20).

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claims 6, 14, and 17 are objected to because of the following informalities:
 - Claim 6, line 2: "comprises" should be --comprising-- to be consistent with the language used in the other dependent claims.
 - Claim 14, line 2: "a bonding agent" should be --the bonding agent-- since antecedent basis was already established in claim 1.
 - Claim 17, line 1: --the-- should be inserted after "wherein".
- Appropriate correction is required.

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Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 5-7, 19, 22-23, 25, and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3, it recites the limitation "the sealed vacuum bag" in line 2. Regarding claim 22, it recites the limitation "wherein the step of sealing the vacuum bag" in line 1.

Regarding claim 23, it recites the limitation "wherein the step of sealing the bag" in line 1.

Regarding claim 25, it recites the limitation "the sealed bag" in line 1. There is insufficient antecedent basis for these limitations in the claims. It is suggested to make these claims depend on claim 26 to establish proper antecedent basis.

Regarding claim 5, it recites the limitation "the bonding surface" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim. It is suggested to change this phrase to --a bonding surface--.

Regarding claim 19, it recites the limitation "the region" and "the features" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim. It is suggested to change these phrases to --a region-- and --the feature--.

Regarding claim 44, it is unclear what Applicant means by "the method of claim 27" when claim 27 is a subassembly. Did Applicant intend for claim 44 to depend on claim 1? If so, please note that claim 43 already claims such a limitation and therefore claim 44 would be a duplicate thereof. It is suggested to amend claim 44 to state --The subcombination of claim 27--

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thereby placing it within the Group of non-elected claims drawn to the subcombination (see restriction requirement dated 11/3/03).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 14, 23, 25-26, 40, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Varaprasad et al. (US 5724187).

With respect to claim 1, Varaprasad is directed to a method of assembling electrochemical cell components (column 1, lines 14 and 18-19; column 26, lines 1-5). The reference teaches aligning first and second electrochemical cell components 2 and 3, providing a bonding agent 5 between the components (see Figure 3B, column 19, lines 19-35, column 23, lines 49-60; note Applicant is not claiming a particular sequence for the aligning and providing steps and also does not exclude the steps taking place simultaneously; note dependent claim 5 where Applicant applies bonding agent to one substrate and then aligns it with the other substrate, which is what reference does), placing the aligned components into a container consisting essentially of a pliable bag, and drawing a vacuum within the pliable bag (column 26, line 59 – column 27, line 6). The skilled artisan would have appreciated that evacuation of the bag would force the same to collapse and mold to the shape of the components in order to carry out pressing of the components as described in the reference (column 27, lines 2-6), because that is how a vacuum bag works.

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Regarding claim 3, the reference teaches sealing the vacuum bag and placing the sealed bag into an oven (column 27, lines 6-13).

Regarding claim 14, the reference teaches maintaining alignment of the components by disposing the bonding agent between them.

Regarding claim 23, the reference teaches hermetically sealing the bag (column 27, lines 11-13).

Regarding claim 25, the reference teaches maintaining the vacuum inside the bag without maintaining a connection to a vacuum source (column 27, lines 11-13).

Regarding claim 26, the reference teaches sealing the bag to retain the vacuum within the bag and maintaining the vacuum within the bag (column 27, lines 11-13).

Regarding claim 40, the reference teaches maintaining the vacuum within the bag until the adhesive has cured (column 27, lines 6-13).

Regarding claim 43, the reference teaches the bonding agent being a contact adhesive (column 26, lines 1-5; column 27, lines 10-11).

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 1, 14, 24, 40, and 43 are rejected under 35 U.S.C. 102(a) as being anticipated by Ikai et al. (US 2001/0006092).

With respect to claim 1, Ikai is directed to a method of assembling electrochemical cell components (sections [0009], [0018]). The reference teaches aligning first and second electrochemical cell components, providing a bonding agent (epoxy-based sealant) between the

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components (sections [0021], [0031]; note Applicant is not claiming a particular sequence for the aligning and providing steps and also does not exclude the steps taking place simultaneously; note dependent claim 5 where Applicant applies bonding agent to one substrate and then aligns it with the other substrate, which is what reference does), placing the aligned components into a container consisting essentially of a pliable bag, and drawing a vacuum within the pliable bag (section [0035]). The skilled artisan would have appreciated that evacuation of the bag would force the same to collapse and mold to the shape of the components in order to carry out pressing of the components as described in the reference (section [0035]), because that is how a vacuum bag works.

Regarding claim 14, the reference teaches maintaining alignment of the components by disposing the bonding agent between them.

Regarding claim 24, the reference teaches placing the components into the bag without an alignment frame (section [0035]).

Regarding claim 40, the reference teaches maintaining the vacuum within the bag until the bonding agent has cured (section [0035]).

Regarding claim 43, the reference teaches the bonding agent being a contact adhesive (section [0031]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Varaprasad et al. and further in view of Taira (US 6294279).

Regarding claim 2, Applicant is directed to paragraph 7 above for a complete discussion of Varaprasad. The reference is silent as to applying pressure to the outside of the vacuum bag.

It is known in the art to laminate electrochemical cell components by placing the components in a vacuum bag, evacuating the bag, and applying hydrostatic pressure to the vacuum bag, as taught by Taira (column 3, lines 31 and 38-46; column 5, lines 13-17).

Therefore, it would have been obvious to the skilled artisan at the time the invention was made to apply hydrostatic pressure to the vacuum bag of Varaprasad because such is known in the art, as taught by Taira, wherein such additional pressure would expedite the laminating process.

12. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varaprasad et al. and further in view of Kumeuchi et al. (US 6156080).

Regarding claim 20, Applicant is directed to paragraph 7 above for a complete discussion of Varaprasad. The reference is silent as to the vacuum bag being selected from polyethylene and nylon-polyethylene blend.

Selection of particular materials for the bag would have been within purview of the skilled artisan at the time the invention was made depending the desired characteristics. However, it would have been obvious to use a polyethylene or nylon-polyethylene bag because such is known in the art, as taught by Kumeuchi (column 3, lines 46-48).

Regarding claim 21, selection of a particular thickness for the bag would have been within purview of the skilled artisan depending on the desired characteristics thereof.

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13. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Varaprasad et al. and further in view of Cheshire (US 5206756).

Regarding claim 22, Applicant is directed to paragraph 7 above for a complete discussion of Varaprasad. The reference teaches sealing the vacuum bag but is silent as to how (column 27, lines 11-13).

It is known in the art to laminate the components comprising an electrochemical cell by placing the components inside a vacuum bag, evacuating the bag, and sealing the bag under the vacuum by heat-sealing the edges of the bag, as taught by Cheshire (column 31, lines 39-45). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to seal the vacuum bag of Varaprasad by heat-sealing the edges of the bag because such is known in the art, as taught by Cheshire, wherein this provides an excellent seal for preventing loss of vacuum.

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikai et al. and further in view of Taira.

Regarding claim 2, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. The reference is silent as to applying pressure to the outside of the vacuum bag.

It is known in the art to laminate electrochemical cell components by placing the components in a vacuum bag, evacuating the bag, and applying hydrostatic pressure to the vacuum bag, as taught by Taira (column 3, lines 31 and 38-46; column 5, lines 13-17). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to apply hydrostatic pressure to the vacuum bag of Ikai because such is known in the art, as taught by Taira, wherein such additional pressure would expedite the laminating process.

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15. Claims 3, 23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikai et al. and further in view of Varaprasad et al.

Regarding claim 3, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. The reference teaches thermally curing the sealant while applying a constant pressing force via the vacuum bag or other alternative pressing means (i.e. placing weight on components, etc.; sections [0034-0035]). The reference achieves simultaneous curing and pressing by placing the sealed vacuum bag into an oven (section [0070]; note Example 1 uses a weight to apply pressure to the components wherein weight and components placed in oven to thermally cure bonding agent; skilled artisan reading reference as a whole would have appreciated that thermal curing of components being pressed by vacuum bag, as alternative to weight, would also be achieved by placing bag and components in oven, since reference clearly discloses the various pressing means being functional equivalents in section [0035]). However, the reference is silent as to the vacuum bag being sealed.

It would have been obvious to the skilled artisan at the time the invention was made to seal the vacuum bag of Ikai before placing it into the oven because such is known in the art, as taught by Varaprasad (column 27, lines 6-13), wherein sealing allows for removal of the vacuum source thereby making the bag less cumbersome and easier to place into an oven.

Regarding claim 23, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. Ikai is silent as to hermetically sealing the bag. It would have been obvious to hermetically seal the vacuum bag of Ikai because such is known in the art, as taught by Varaprasad (column 27, lines 11-13), wherein this prevents any external factors from affecting the vacuum established within the bag.

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Regarding claim 25, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. Ikai is silent as to maintaining the vacuum inside a sealed vacuum bag without maintaining a connection to a vacuum source. It would have been obvious to seal the vacuum bag of Ikai to maintain the vacuum within the bag without connection to a vacuum source because such is known in the art, as taught by Varaprasad (column 27, lines 11-13), and this makes the bag less cumbersome and easier to place into an oven.

Regarding claim 26, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. Ikai is silent as to sealing the vacuum bag to retain the vacuum and maintaining the vacuum within the bag. It would have been obvious to seal the bag of Ikai to retain the vacuum and maintain the vacuum within because such is known in the art, as taught by Varaprasad (column 27, lines 6-13), wherein this allows for continuous application of pressure to the components during the thermal curing cycle, as desired by Ikai, without having to keep the bag connected to a vacuum source.

16. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikai et al. and further in view of Kumeuchi et al.

Regarding claim 20, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. The reference is silent as to the vacuum bag being selected from polyethylene and nylon-polyethylene blend.

Selection of particular materials for the bag would have been within purview of the skilled artisan at the time the invention was made depending the desired characteristics. However, it would have been obvious to use a polyethylene or nylon-polyethylene bag because such is known in the art, as taught by Kumeuchi (column 3, lines 46-48).

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Regarding claim 21, selection of a particular thickness for the bag would have been within purview of the skilled artisan depending on the desired characteristics thereof.

17. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikai et al. and further in view of Cheshire.

Regarding claim 22, Applicant is directed to paragraph 9 above for a complete discussion of Ikai. The reference is silent as to sealing the vacuum bag.

It is known in the art to laminate the components comprising an electrochemical cell by placing the components inside a vacuum bag, evacuating the bag, and sealing the bag under the vacuum by heat-sealing the edges of the bag, as taught by Cheshire (column 31, lines 39-45). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to seal the vacuum bag of Ikai by heat-sealing the edges of the bag because such is known in the art, as taught by Cheshire, wherein this provides an excellent seal for preventing loss of vacuum.

18. Claims 1, 4, 10, 14, 19, 23-26, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. (US 6080503) in view of the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. (US 5300206).

With respect to claim 1, Schmid is directed to a method of assembling electrochemical cell components (abstract). The reference teaches aligning first and second electrochemical cell components 12 and 11 and providing a bonding agent 50 between the components (**Figure 4a**; column 4, lines 9-11; column 5, lines 35-37; column 6, line 24; column 8, lines 21-31; note Applicant is not claiming a particular sequence for the aligning and providing steps and also does not exclude the steps taking place simultaneously; note dependent claim 5 where Applicant applies bonding agent to one substrate and then aligns it with the other substrate). The reference

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is silent as to placing the aligned components into a container consisting essentially of a pliable bag and drawing a vacuum within the pliable bag.

It is known in the art to assemble electrochemical cell components by providing an adhesive between the components, placing the components into a container consisting essentially of a pliable vacuum bag, and drawing a vacuum within the bag in order to apply pressure to the components to facilitate bonding of the same, as taught by the collective teachings of Varaprasad (column 26, lines 1-5; column 26, line 59 – column 27, line 4), Ikai (section [0035]), and Allen (column 7, lines 15-20; column 5, lines 25-38). The skilled artisan would have appreciated that evacuation of the bag would force the same to collapse and mold to the shape of the components in order to carry out pressing of the components as described in the collective teachings, because this is how a vacuum bag works.

Since Schmid teaches applying pressure to the components after the adhesive is placed between them (column 8, lines 27-31), it would have been obvious to the skilled artisan at the time the invention was made to apply this pressure by placing the components in a container consisting essentially of a pliable bag and drawing a vacuum within the bag so that it molds to the shape of the components because such is known in the art, as taught by the collective teachings of Varaprasad, Ikai, and Allen, wherein such a pressing technique is advantageous because it prevents the formation of air bubbles/pockets between the adhesive and components while also allowing for the application of uniform pressure to all areas of the components.

Regarding claim 4, Schmid teaches distributing the bonding agent through one or more closed channels 71 formed between the components (Figure 4a).

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Regarding claim 10, Schmid teaches an overflow reservoir 72 in fluid communication with the channel and capturing excess bonding agent flowing from the channel into the reservoir (Figure 4a; column 8, lines 31-32).

Regarding claim 14, Schmid teaches maintaining alignment of the components by disposing the bonding agent between them.

Regarding claim 19, Schmid teaches providing an overflow reservoir 72 along an interface between the components and between a bonding area (channel 71) and a non-bonding area (far left where components directly contact each other in Figure 4a) and retaining and confining excess adhesive to a region bounded by the overflow reservoir to prevent the adhesive from reaching the non-bonding area.

Regarding claim 23, Varaprasad teaches hermetically sealing the vacuum bag (column 27, lines 11-13).

Regarding claim 24, Ikai (section [0035]) and Allen (column 5, lines 26-29) teach placing the components into the bag without an alignment frame (section [0035]).

Regarding claim 25, Varaprasad teaches sealing the vacuum bag and maintaining the vacuum inside the bag without maintaining a connection to a vacuum source (column 27, lines 11-13).

Regarding claim 26, Varaprasad teaches sealing the bag to retain the vacuum within the bag and maintaining the vacuum within the bag (column 27, lines 11-13).

Regarding claim 43, Schmid teaches the adhesive being a contact adhesive (Figure 4a).

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19. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 1 above, and further in view of Taira.

Regarding claim 2, Schmid is silent as to applying pressure to the outside of the vacuum bag. It is known in the art to laminate electrochemical cell components by placing the components in a vacuum bag, evacuating the bag, and applying hydrostatic pressure to the vacuum bag, as taught by Taira (column 3, lines 31 and 38-46; column 5, lines 13-17). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to apply hydrostatic pressure to the vacuum bag of Schmid in view of the collective teachings because such is known in the art, as taught by Taira, wherein such additional pressure would expedite the laminating process.

20. Claims 3 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 1 above, and further in view of Inoue et al. (US 2002/0031698).

Regarding claim 3, Schmid in view of Varaprasad (column 27, lines 11-13) teaches sealing the vacuum bag but is silent as to placing a sealed vacuum bag containing the components into an oven.

Schmid is silent as to a particular type of adhesive but does teach the adhesive being in a variety of forms, including liquid form (column 5, lines 35-37); therefore, it would have been obvious to the skilled artisan to use a liquid adhesive that requires thermal curing for the adhesive of Schmid because it is known in the art to assemble electrochemical cell components by placing such an adhesive in closed channels formed between the components and

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simultaneously heating and pressing the components to bond the same while curing the adhesive, as taught by Inoue (section [0002]; section [0105]; section [0107]; section [0110]), wherein such an adhesive forms a good bond between electrochemical cell components.

Furthermore, it would have been obvious to the skilled artisan at the time the invention was made to carry out thermal curing of such an adhesive by placing the sealed vacuum bag containing the components of Schmid into an oven because such is known in the art, as taught by the collective teachings of Varaprasad (column 27, lines 1-13) and Ikai (sections [0034-0035] and [0070]), wherein this allows for simultaneous pressing and curing and hence optimum bond formation.

Regarding claim 40, both Varaprasad (column 27, lines 6-13) and Ikai (sections [0035] and [0070]) teach maintaining the vacuum until the adhesive has cured.

21. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 4 above, and further in view of Grupp et al. (US 5742006).

Regarding claim 5, Schmid teaches applying the adhesive to the channel 71 in first component 12 (Figure 4a; column 8, lines 27-28) but is silent as to Applicant's claimed method steps.

It is known in the art to assemble a first cell component 12 having channels to a second cell component 11 having no channels, wherein adhesive is placed into the upward-facing channel of the first component and a closed channel is created by aligning the second component with the first component, as taught by Grupp et al. (Figures 1 and 3; column 4, lines 19-21 and 26-28; column 6, lines 46-50). Therefore, it would have been obvious to apply the adhesive into

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the channel of the first component of Schmid while the channel is facing upward because such is known in the art, as taught by Grupp, wherein this prevents the adhesive from flowing out of the channel before the components are assembled.

Since Schmid teaches the first and second components being oriented such that the first component 12 is positioned on top of the second component 11 (Figure 4a), it would have been obvious to the skilled artisan at the time the invention was made to align the second component 11 with the first component 12, having its channel facing upward, and then invert the components to achieve the orientation shown in Figure 4a because inverting the first component and then aligning it on top of the second component would likely result in adhesive escaping from the channel prematurely and in undesirable locations. Furthermore, the skilled artisan would have appreciated that at least gravity, as a result of the inverting step, would force the adhesive to flow against the second component.

22. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al., the collective teachings of Varaprasad et al., Ikai et al., and Allen et al., and Grupp et al. as applied to claim 5 above, and further in view of Quake et al. (US 2002/0037499).

Regarding claim 6, Schmid is silent as to the channel containing a plurality of supports. It is known to provide supports in open channels formed in the surface of a first component in order to support a section of a second component that covers the open channels so that pressure does not cause the components to deform, as taught by Quake (section [0389]).

It would have been obvious to the skilled artisan at the time the invention was made to provide supports in the open channel of Schmid because such is known, as taught by Quake, wherein this would prevent unwanted deformation during pressing by the vacuum bag.

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Regarding claim 7, placing supports in the channel of the first component or on the surface of the second component would have been within purview of the skilled artisan at the time the invention was made since only the expected results of preventing deformation would have been achieved.

23. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 1 above, and further in view of Grupp et al. and the collective teachings of Mestetsky et al. (US 3803068) and Choi (US 6635138).

Regarding claim 15, Schmid is silent as to treating a bonding surface and a non-bonding surface. It is known to treat a bonding surface of a cell component to enhance flow of an adhesive, as taught by Grupp (column 5, lines 24-30). It is also known to treat a non-bonding surface of a substrate to prevent adhesive or another substance from adhering thereto, as taught by the collective teachings of Mestetsky (column 1, lines 7-9; column 2, lines 20-23) and Choi (column 4, lines 62-65).

Therefore, it would have been obvious to the skilled artisan at the time the invention was made to treat the bonding and non-bonding surfaces of the components of Schmid to enhance and inhibit adhesive flow, respectively, because such is known, as taught by Grupp and the collective teachings of Mestetsky and Choi, wherein such treatment aids in achieving the desired bonding pattern between components.

Regarding claim 16, Grupp teaches enhancing flow by applying a wetting agent (column 5, line 27).

Regarding claim 17, the skilled artisan would have appreciated that the treatment disclosed by Grupp would result in anionic and/or cationic active compounds on the surface of the component, which increase the wettability of the surface (column 5, lines 25-30).

Regarding claim 18, both Mestetsky (column 1, lines 7-9) and Choi (column 4, lines 62-65) teach treating the non-bonding surfaces by coating.

24. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 1 above, and further in view of Kumeuchi et al.

Regarding claim 20, the collective teachings are silent as to the vacuum bag being selected from polyethylene and nylon-polyethylene blend.

Selection of particular materials for the bag would have been within purview of the skilled artisan at the time the invention was made depending the desired characteristics. However, it would have been obvious to use a polyethylene or nylon-polyethylene bag because such is known in the art, as taught by Kumeuchi (column 3, lines 46-48).

Regarding claim 21, selection of a particular thickness for the bag would have been within purview of the skilled artisan depending on the desired characteristics thereof.

25. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. and the collective teachings of Varaprasad et al., Ikai et al., and Allen et al. as applied to claim 1 above, and further in view of Cheshire.

Regarding claim 22, Varaprasad teaches sealing the vacuum bag but is silent as to how (column 27, lines 11-13). It is known in the art to laminate the components comprising an electrochemical cell by placing the components inside a vacuum bag, evacuating the bag, and

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sealing the bag under the vacuum by heat-sealing the edges of the bag, as taught by Cheshire (column 31, lines 39-45). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to seal the vacuum bag of Schmid in view of Varaprasad by heat-sealing the edges of the bag because such is known in the art, as taught by Cheshire, wherein this provides an excellent seal for preventing loss of vacuum.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **571-272-1223**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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